

Advanced Resin Flow Simulation for VRTM and RTM using Moldex3D

R. Morishima¹, L. Ren²

¹ Airbus Operations UK Ltd, Aerospace Avenue, Bristol BS34 7PA, UK

² Moldex3D Europe B.V., Parijsboulevard 209, 3541 CS, Utrecht, The Netherlands

With increasingly challenging demands to increase aircraft production rate, lower cost and enhance performance, co-development of parts between engineering and manufacturing is mandatory. Advanced numerical simulation is key to enable this co-development by optimising the manufacturing process and assessing the manufacturability early in the design stages. This work presents the state of the art in numerical simulation of Resin Transfer Molding (RTM) and Vacuum assisted RTM (VRTM) processes. Small-scale use cases demonstrate the successful prediction of resin front progression, fill time and identification of dry spot areas. Some of the challenges that remain to reach an industrially viable simulation approach are also addressed.